Montana Code Annotated 2011

60-1-103. General definitions. Subject to additional definitions contained in this title that are applicable to specific chapters or sections and unless the context otherwise requires, the following definitions apply:

(1) "Abandonment" means cessation of use of right-of-way or an easement or cessation of activity on the right-of-way or easement with no intention to reclaim or use again. Abandonment is sometimes called vacation.

(2) "Bridge" means any bridge constructed by the department, together with all appurtenances, additions, alterations, improvements, and replacements and the approaches to the bridge, lands used in connection with the bridge, and improvements incidental or integral to the bridge.

(3) "Commission" means the transportation commission provided for in 2-15-2502.

(4) "Condemnation" means taking by exercise of the right of eminent domain, as provided in Title 70, chapter 30, and chapter 4 of this title.

(5) "Construction" means supervising, inspecting, actual building, and all expenses incidental to the construction or reconstruction of a highway, including locating, surveying, mapping, and costs of right-of-way or other interests in land and elimination of hazards at railway grade crossings.

(6) "Control of access" means the condition in which the right of owners or occupants of abutting land or other persons to access, light, air, or view in connection with a highway is fully or partially controlled by public authority.

(7) "County road" means any public highway opened, established, constructed, maintained, abandoned, or discontinued by a county in accordance with Title 7, chapter 14.

(8) "Department" means the department of transportation provided for in Title 2, chapter 15, part 25.

(9) "Director" means the director of transportation, a position provided for in 2-15-2501.

(10) "Easement" means a right acquired by public authority to use or control property for a designated purpose.

(11) "Eminent domain" means the right of the state to take private property for public use.

(12) "Federal-aid highway" means a public highway that is a portion of any of the federal-aid highway systems.

(13) "Federal-aid highway systems" means all of the systems named as part of the systems and their urban extensions.

(14) "Federal-aid interstate system" means that system of public highways selected by the commission in cooperation with adjoining states, subject to the approval of the secretary of commerce, as provided in Title 23, U.S.C.

(15) "Federal-aid primary system" means that system of connected public highways designated by the commission, subject to the approval of the secretary of commerce, as provided in Title 23, U.S.C.

(16) "Federal-aid secondary system" means that system of public highways not in the federal-aid primary or interstate systems selected by the commission in cooperation with the boards of county commissioners, subject to the approval of the secretary of commerce, as provided in Title 23, U.S.C.

(17) "Fee simple" means an absolute estate or ownership in property, including unlimited power of alienation.

(18) "Highway" includes rights-of-way or other interests in land, embankments, retaining walls, culverts, sluices, drainage structures, bridges, railroad-highway crossings, tunnels, signs, guardrails, and protective structures.

(19) "Highway", "road", and "street", whether the terms appear together or separately or are preceded

by the adjective "public", are general terms denoting a public way for purposes of vehicular travel and include the entire area within the right-of-way.

(20) "Highway authority" means the entity at any level of government authorized by law to construct and maintain highways.

(21) "Maintenance" means the preservation of the entire highway, including surface, shoulders, roadsides, structures, and traffic control devices that are necessary for the safe and efficient use of the highway.

(22) "Public highways" means all streets, roads, highways, bridges, and related structures:

(a) built and maintained with appropriated funds of the United States or the state or any political subdivision of the state;

(b) dedicated to public use;

(c) acquired by eminent domain, as provided in Title 70, chapter 30, and chapter 4 of this title; or

(d) acquired by adverse use by the public, with jurisdiction having been assumed by the state or any political subdivision of the state.

(23) "Right-of-way" is a general term denoting land, property, or any interest in land or property, usually in a strip, acquired for or devoted to highway purposes.

(24) "Scenic-historic byway" means a public road or segment of a public road that has been designated as a scenic-historic byway by the commission, as provided in 60-2-601.

(25) "State highway" means any public highway planned, laid out, altered, constructed, reconstructed, improved, repaired, maintained, or abandoned by the department.

History: En. Sec. 2-101, Ch. 197, L. 1965; amd. Sec. 69, Ch. 316, L. 1974; R.C.M. 1947, 32-2203(part); amd. Sec. 2, Ch. 23, L. 1979; amd. Sec. 3, Ch. 512, L. 1991; amd. Sec. 2, Ch. 75, L. 1995; amd. Sec. 1, Ch. 546, L. 1999; amd. Sec. 34, Ch. 125, L. 2001.

Mr. Chairman and Members of the House Natural Resources Committee.

My Name is Jerry Simpson, a lifelong resident of Fergus County. Due to an accident and subsequent surgery I am not able to attend this hearing in person. Please accept this as my testimony

I would like to state that I am in full support of HB558. The reasons are quite simple. In 2011, certain county roads in Fergus County were upgraded to Missile Roads, with Western Federal Lands Highway Division as the designer/engineer. During this upgrade, the chemical calcium chloride was applied and worked into the road bed to "provide long term stability to the roads". The resulting road surface was, and still is, a long way from meeting that goal.

According to documentation that I received from Western Federal, the "targeted rate was 2.5%". After a community uproar, they adjusted the application rate down, we were told in half, which would make it about 1.25%. I can tell you that there was no noticeable difference in the road, or the muck grime that it continued to produce, after the application rate was decreased. We were told this was because of the weather. I am a lifelong farmer, and that is the standard answer given when a chemical fails to work. Now it is a year and half latter, and the product still has not cured.

I requested a Material Safety Data Sheet for the product, and a copy of the EIS for this project. I was told that I would have to go through the Freedom of Information Act for this information and would have to pay for it. Thanks to Senator Jon Tester, I didn't have to go that route. What we learned from this is that an EIS was not done, but instead a CE, that stated that the project would not go over any waters and the road would not be changed, was issued. A complaint was filed with the DEQ because of this project, and again nothing was done. The

use of calcium chloride was finally stopped when a Moore Public Schools bus had break failure due to the excessive buildup of the muck that these roads were producing.

While the project may have been well intended, the results have been less than positive. The attitude of the Federal authorities was beyond belief. They continued to apply this product even though they could see the wreck that was happening. Many tons of this muck were hauled off by unsuspecting motorists, farmers, and even the military. It was deposited in various parking lots, farm fields, city streets, and farm yards throughout Central Montana. It has wreaked havoc on vehicles, farm equipment, and I'm sure the environment as this stuff was in flowing water ways. It is for these reasons that I fully support and commend Representative Lenz for bringing HB 558 to the Legislature. If I can answer any questions, please feel free to contact me at 406-374-2280.

Thank you for your time.

Jerry Simpson

549 Wichman Road

Moore, MT

Friday, March 8, 2013

Dear Chairman and Members of the Committee:

I am writing to you to help you be more aware of the road situation we have endured in the Moore area concerning the magnesium chloride and calcium chloride used for road stabilization. I live on the Crystal Lake road and I have first hand experience. This is the second time we have endured this situation since they applied this product to our road as a TEST plot in front of our house. It was as miserable to deal with the second time as the first time. Unless you have experienced these road conditions, you cannot begin to know the misery of what we have endured.

This slime clings to our vehicles, equipment, shovels, shoes, bicycles and anything that touches it. When we had to leave our home we left with such dread, knowing we had to drive through the slimey goo. We left piles of slime on the highways making them bumpy and rough for other vehicles. There were piles in parking lots, curbsides, car washes, doctor office parking lots in Lewistown, Billings and Great Falls. Whenever we traveled we had slime in the motel parking lots. When we returned home, we tried to pressure wash wherever we could reach the attached slime. We were unable to do the underside of vehicles so they would rust out. I did not get to wash off a shovel I used to scrape some of the piles of slime and that shovel lost its finish. The piles could not be scooped up for removal. The slime pushed along leaving slimey, gooey streaks. We had to pressure wash the garage floor and also had to discontinue the use of our garage. We parked far away from the garage where mounds continued to drop off smothering the grass. The globs would harden then become wet and oozey as the slime came back to life again like an alien creature. The road would look dry and then become slimey and wet as though it had been sprayed with water.

We pay taxes for the roads but we could not use the roads to

drive, walk or ride our bicycles to our destinations. We could not have friends come to visit or go to our fields without feeling such dread and grief. Something is terribly wrong!!!

This cannot be left to our local road departments or other departments to make decisions because they have failed miserably to correct this situation. There was a tremendous outcry from affected residents to discontinue these road treatments. The product continued to be applied to the roads until all roads were completed and more and more people suffered the consequences.

We drove very slowly over ¼ mile to a new field during the harvest. We had to pressure wash two combines, two trucks and a pilot car before continuing to another field.

Local road departments and Malmstrom Air Force Base had been told that this method is approved in many parts of the state and other states. Approval simply means the project is completed as planned. The slimey mess in Moore is approved.

We do appreciate the dust free roads and clean air. Surely there is another method that would not be so invasive.

PLEASE HELP US!

Please pass House Bill 558 submitted by Rep. Dennis Lenz, R-Billings.

Thank you.

Dorothy Lenz

5016 Crystal Lake Road
Moore, Mt. 59464

CenturyLink Webmail

dlenz62@q.con

+ Font Size -

Chloride

From : Steve Hertel <stevehertel@hotmail.com>

Mon, Feb 25, 2013 03:26 PM

Subject : Chloride

To : dlenz62@q.com

Dennis,
I am not going to be able to making the hearing. So this is what my opinion is:

Calcium Chloride is a tool that has been used in road construction for many years. If used properly I do believe it can be a useful tool. However, if miss applied it can create a hazard to personal property, public property and the environment.

I do believe that is what has happened in the central MT area. Instead of using the recommended rate of 2 lbs per cubic yard of aggregate calcium chloride was applied at a rate of 5 to 6 times the recommended rate.

This lead to the applied roads being a sloppy mess that would not set up. When moisture came or just humidity in the air the road became a sloppy mess again. The corrosive agent depleted the value of my vehicles and machinery. Then this corrosive agent was transferred to private and public property. All a person had to do was look at the local grocery store parking lot and one could tell right where people had to travel from. This parking lot was 20 miles away. Then this corrosive agent ended up in the waste water treatment facility.

It is said that with the addition of calcium chloride to construction it will lower maintenance on the gravel road. I beg to disagree. The road where high rates of calcium chloride were used are full of sharp pot holes. This leads to high maintenance

I do believe that calcium chloride can be a useful tool in road construction if applied at a proper rate and not misused causing a public nightmare.

Steve Hertel
1743 S Trout Ck Rd
Moore, MT 59464

Sent from my iPhone

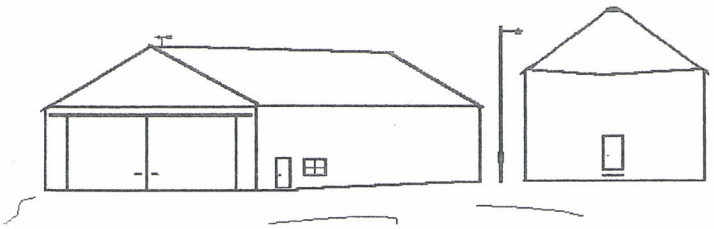
Mr. James Janicek
3571 Crystal Lake Rd.
Moore, MT 59464

Committee Members
House Bill 558

Dear Sirs,

The summer of 2011 was pure hell in dealing with the calcium cloride solution put on our Crystal Lake Rd. The salts were so thick it looked like we had a snow storm. My wife even gummed up her bicycle in the muck. This gump was litterly impossible to wash off and left globs of crap in the driveway and garage. We had to take routes down the creek and through the fields Trying to avoid this mess. Even with constant washing this stuff ruined a set of aluminum wheels on our pickup. Also this road is breaking up already and still gets gumpy. I am amazed the EPA would approve such a project!

Respectfully
Jim Janicek



Berg Farm

March 19, 2013

Rep. Dennis Lenz
Montana House of Representatives

Dear Dennis,

This is the only letter I have sent to all members of the Senate Highways and Transportation Committee.

I am asking you to support HB 556 sponsored by Representative Dennis Lenz. The United States Air Force has the power to treat rural roads with calcium chloride against our will. The roads treated with calcium chloride develop dangerous chuckholes and the chemical is abrasive, destructive to our equipment. We originally met with the United States Air Force to no avail.

Please stop the use of calcium chloride in the State of Montana.

Sincerely,

Dean E. Berg
Farmer

Producing for the World
698 N. Trout Creek Rd – Moore Mt. 59464
406-374-2210

California Bearing Ratio (CBR)

The California Bearing Ratio or CBR test (Table 5-27) is an indirect measure of soil strength based on resistance to penetration by a standardized piston moving at a standardized rate for a prescribed penetration distance (Figure 5-12). CBR values are commonly used for highway, airport, parking lot, and other pavement designs based on empirical local or agency specific methods (*i.e.*, FHWA, FAA, AASHTO). CBR has also been correlated empirically with resilient modulus and a variety of other engineering soil properties.

CBR is not a fundamental material property and thus is unsuitable for direct use in mechanistic and mechanistic-empirical design procedures. However, it is a relatively easy and inexpensive test to perform, it has a long history in pavement design, and it is reasonably well correlated with more fundamental properties like resilient modulus. Consequently, it continues to be used in practice.

Table 5-27. California Bearing Ratio (CBR).

Description	The California Bearing Ratio or CBR is an indirect measure of soil strength based on resistance to penetration.
Uses in Pavements	Direct input to some empirical pavement design methods Correlations with resilient modulus and other engineering properties
Laboratory Determination	AASTHO T 193 or ASTM D 1883. CBR is based on resistance to penetration by a standardized piston moving at a standardized rate for a prescribed penetration distance (Figure 5-12). CBR is defined as the ratio of the load required to cause a certain depth of penetration of a piston into a compacted specimen of soil at some water content and density, to the *standard load* required to obtain the same depth of penetration on a standard sample of crushed stone (usually limestone). Typically soaked conditions are used to simulate anticipated long term conditions in the field. The CBR test is run on three identically compacted samples. Each series of the CBR test is run for a given relative compaction and moisture content. The geotechnical engineer must specify the conditions (dry, at optimum moisture, after soaking, 95% relative compaction, etc.) under which each test should be performed.
Field Measurement	ASTM D 4429. Test procedure is similar to that for laboratory determination.
Commentary	Most CBR testing is laboratory based; thus, the results will be highly dependent on the representativeness of the samples tested. It is also important that the testing conditions be clearly stated: CBR values measured from as-compacted samples at optimum moisture and density conditions can be significantly greater than CBR values measured from similar samples after soaking, for example. For field measurement, care should be taken to make certain that the deflection dial is anchored well outside the loaded area. Field measurement is made at the field moisture content while laboratory testing is typically performed for soaked conditions, so soil-specific correlations between field and laboratory CBR values are often required.
Typical Values	See Table 5-28. For AASHO Road Test, CBR ≈ 100 for the granular base layer and about 30 for the granular subbase.

Figure 5-12. California Bearing Ratio test device (http://www.ele.com/geot/cali.htm).

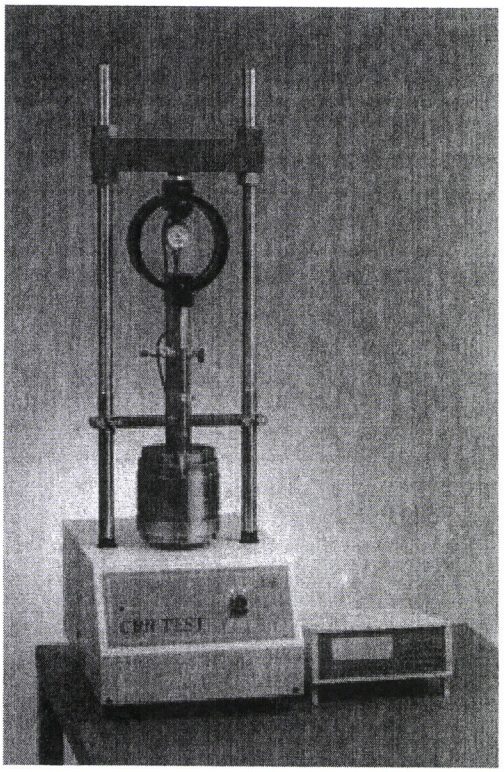


Table 5-28: Typical CBR values (after U.S. Army Corps of Engineers, 1953).

USCS Soil Class	Field CBR
GW	60 - 80
GP	35 - 60
GM	40 - 80
GC	20 - 40
SW	20 - 40
SP	15 - 25
SM	20 - 40
SC	10 - 20
ML	5 - 15
CL	5 - 15
OL	4 - 8
MH	4 - 8
CH	3 - 5
OH	3 - 5

Unified Soil Classification System

The **Unified Soil Classification System** (**USCS**) is a soil classification system used in engineering and geology to describe the texture and grain size of a soil. The classification system can be applied to most unconsolidated materials, and is represented by a two-letter symbol. Each letter is described below (with the exception of **Pt**):

First and/or second letters

Symbol	Definition
G	gravel
S	sand
M	silt
C	clay
O	organic

Second letter

Letter	Definition
P	poorly graded (uniform particle sizes)
W	well-graded (diversified particle sizes)
H	high plasticity
L	low plasticity

If the soil has 5–12% by weight of fines passing a #200 sieve ($5\% < P_{\#200} < 12\%$), both grain size distribution and plasticity have a significant effect on the engineering properties of the soil, and dual notation may be used for the group symbol. For example, GW-GM corresponds to "well-graded gravel *with silt*."

If the soil has more than 15% by weight retained on a #4 sieve ($R_{\#4} > 15\%$), there is a significant amount of gravel, and the suffix "with gravel" may be added to the group name, but the group symbol does not change. For example, SP-SM could refer to "poorly graded SAND with silt" or "poorly graded SAND with silt and gravel."

[edit] Symbol chart

Major divisions			Group symbol	Group name
Coarse grained soils more than 50% retained on No.200 (0.075 mm) sieve	gravel > 50% of coarse fraction retained on No. 4 (4.75 mm) sieve	clean gravel <5% smaller than #200 Sieve	**GW**	well-graded gravel, fine to coarse gravel
			GP	poorly graded gravel
		gravel with >12% fines	**GM**	silty gravel
			GC	clayey gravel
	sand ≥ 50% of coarse fraction passes No.4 sieve	clean sand	**SW**	well-graded sand, fine to coarse sand
			SP	poorly graded sand
		sand with >12% fines	**SM**	silty sand
			SC	clayey sand

Fine grained soils more than 50% passes No.200 sieve	silt and clay liquid limit < 50	inorganic	**ML**	silt
			CL	clay
		organic	**OL**	organic silt, organic clay
	silt and clay liquid limit ≥ 50	inorganic	**MH**	silt of high plasticity, elastic silt
			CH	clay of high plasticity, fat clay
		organic	**OH**	organic clay, organic silt
Highly organic soils			**Pt**	peat

[edit] See also

- AASHTO Soil Classification System
- AASHTO
- ASTM International

[edit] References

Classification of Soils for Engineering Purposes: Annual Book of ASTM Standards, D 2487-83, **04.08**, American Society for Testing and Materials, 1985, pp. 395–408, http://www.astm.org/Standards/D2487.htm

Evett, Jack and Cheng Liu (2007), *Soils and Foundations* (7 ed.), Prentice Hall, pp. TBD

AASHTO T 193: Standard Method of Test for The California Bearing Ratio

Publication Date: Jan 1, 2010
SDO: AASHTO: American Association of State Highway and Transportation Officials
☐ DOD Adopted ☐ ANSI Approved Approved

This test method covers the determination of the California Bearing Ratio (CBR) of pavement subgrade, subbase, and base/course materials from laboratory compacted specimens. The test method is primarily intended for, but not limited to, evaluating the strength of cohesive materials having maximum particle sizes less than 19 mm (¾ in.).

When materials having maximum particle sizes greater than 19 mm (¾ in.) are to be tested, this test method provides for modifying the gradation of the material so that the material used for tests all passes the 19.0-mm (¾-in.) sieve while the total gravel 4.75-mm (No. 4) to 75-mm (3-in.) fraction remains the same. While traditionally this method of specimen preparation has been used to avoid the error inherent in testing materials containing large particles in the CBR test apparatus, the modified material may have significantly different strength properties than the original material. However, a large experience base has developed using this test method for materials for which the gradation has been modified and satisfactory design methods are in use based on the results of tests using this procedure.

Past practice has shown that CBR results for those materials having substantial percentages of particles retained on the 4.75-mm (No. 4) sieve are more variable than for finer materials. Consequently, more trials may be required for these materials to establish a reliable CBR.

This test method provides for the determination of the CBR of a material at optimum water content or a range of water content from a specified compaction test and a specified dry unit mass. The dry unit mass is usually given as a percentage of maximum dry unit mass from the compaction tests of T 99 or T 180.

The agency requesting the test shall specify the water content or range of water content and the dry unit mass for which the CBR is desired.

Unless specified otherwise by the requesting agency, or unless it has been shown to have no effect on test results for the material being tested, all specimens shall be soaked prior to penetration.

The values stated in SI units are to be regarded as the standard.

AASHTO T 180: Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

Publication Date: Jan 1, 2010
SDO: AASHTO: American Association of State Highway and Transportation Officials
DOD Adopted ANSI Approved Approved

This method of test is intended for determining the relationship between the moisture content and density of soils when compacted in a given mold of a given size with a 4.54-kg (10-lb) rammer dropped from a height of 457 mm (18 in.). Four alternate procedures are provided as follows:

- *Method A*—A 101.60-mm (4-in.) mold: Soil material passing a 4.75-mm (No. 4) sieve Sections 4 and 5.
- *Method B*—A 152.40-mm (6-in.) mold: Soil material passing a 4.75-mm (No. 4) sieve Sections 6 and 7.
- *Method C*—A 101.60-mm (4-in.) mold: Soil material passing a 19.0-mm (¾-in.) sieve Sections 8 and 9.
- *Method D*—A 152.40-mm (6-in.) mold: Soil material passing a 19.0-mm (¾-in.) sieve Sections 10 and 11.

The method to be used should be indicated in the specifications for the material being tested. If no method is specified, the provisions of Method A shall govern.

This test method applies to soil mixtures that have 40 percent or less retained on the 4.75-mm (No. 4) sieve, when Method A or B is used and 30 percent or less retained on the 19.0-mm (¾-in.) sieve, when Method C or D is used. The material retained on these sieves shall be defined as oversize particles (coarse particles).

If the test specimen contains oversize particles and the test specimen used for field density compaction control, corrections must be made according to T 224 to compare the total field density with the compacted specimen. The person or agency specifying this method shall specify a minimum percentage of oversize particles below which correction for oversize need not be applied. If no minimum percentage is specified, correction shall be applied to samples with more than 5 percent by mass of oversize particles.

If the specified oversized maximum tolerances are exceeded, other methods of compaction control must be used.

Note 1—One method for the design and control of the compaction of such soils is to use a test fill to determine the required degree of compaction and a method to obtain that compaction. Then use a method specification to control the compaction by specifying the type and size of compaction equipment, the lift thickness, and the number of passes.

The following applies to all specified limits in this standard: For the purposes of determining conformance with these specifications, an observed value or a calculated value shall be rounded off "to the nearest unit" in the last right-hand place of figures used in expressing the limiting value, in accordance with ASTM E 29.

The values stated in SI units are to be regarded as the standard.